

NITROGEN AND PHOSPHORUS DOPED AMORPHOUS SILICON AS RESISTOR FOR FIELD EMISSION DISPLAY DEVICE BASEPLATE

Abstract of the Disclosure

Described herein is a resistor layer for use in field emission display devices and the like, and its method of manufacture. The resistor layer is an amorphous silicon layer doped with nitrogen and phosphorus. Nitrogen concentration in the resistor layer is preferably between about 5 and 15 atomic percent. The presence of nitrogen and phosphorus in the silicon prevents diffusion of Si atoms into metal conductive layers such as aluminum, even up to diffusion and packaging temperatures. The nitrogen and phosphorus also prevent defects from forming at the boundary between the resistor layer and metal conductor. This leads to better control over shorting and improved resistivity in the resistor.

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